Remarkable Air Test of the Fulton, Submarine Boat.

JULES VERNE'S "Twenty Thousand Leagues Under the Sea" does not seem such a startling excursion into the domain of fancy after all in view of the achievement of the Holland submarine torpedo boat Fulton, which lay at the bottom of Peconic Bay, off the company's plant at New Suffolk, L. I., for fifteen hours on a recent Saturday night.

All preparations for the test were in order early on Saturday evening and at 7.30 there passed down through her companionway, forward of the turret, Rear-Admiral John Lowe, retired; Lieutenant Arthur MacArthur, Commander of the torpedo boat Winslow; Captain Frank T. Cable, navigator for the Holland Company; John Wilson, machinist; John Saunders, engineer, and Henry Morrell, electrician. The heavy iron hatch was closed over them and after it was securely fastened, the Fulton sank slowly, steadily and evenly out of sight. Before going down the men had eaten a hearty dinner and had with them their luncheon and breakfast. Sunday morning promptly at 10.30, the huge craft rose to the surface so suddenly as almost to startle the many people who had gathered on the shore to witness the finish of the test. The conning tower was not opened for several minutes after the Fulton came to the surface, so one of the workmen swung out to her by the derrick and peered in through the heavy glass windows, then shouted ashore that all was well. When the tower cover opened Captain Cable's head was the first thrust up to view. He saluted the watchers who had been ashore all night, and remarked that if he had know the weather was so very bad above water he would have remained under a while longer. The vessel was six feet under water, and the occupants were not aware of the terrific storm that raged above Captain Cable said:

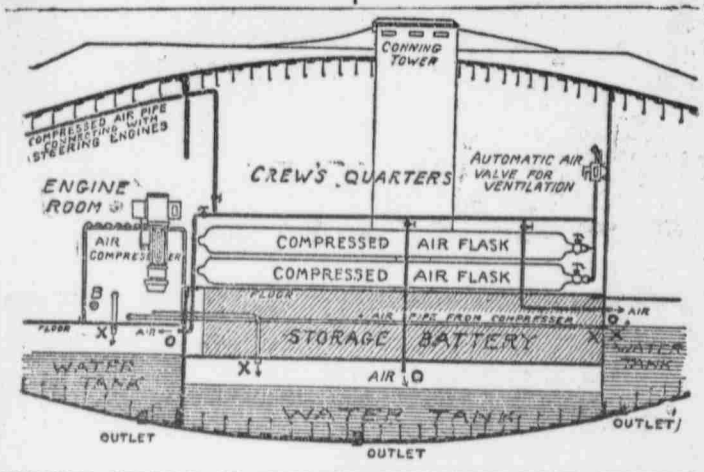
"We had no apparatus to indicate the condition of the atmosphere, but depended on our own feelings. The boat is over sixty-three feet long and it was the ordinary air of the interior that we breathed. We had a good supply of literature and enough food to furnish us two good meals. We played euchre a little and spun yarns. The work done by the French and English submarine boats was discussed. This test exceeds anything accomplished by the other boats. We have done something never done in the world before. We need not have come up as soon as we did, but the fifteen hours were over and that was the time record we had set out to make. I believe that with the twelve flasks we could have stayed down there three months.

"We have proved that we can stay under water for fifteen hours. Our motor will carry us 140 miles, so it would be possible to go right from New Suffolk to New York City and travel the entire distance under water, coming to the surface only occasionally to take our observations. Using our electricity economically we could do this. Our motor is of seventy-horse power, but our 140-horse power gas engine would carry us further. It is only a question of the supplies we can carry."

Captain Cable believes that he has found a way to solve the problem of protecting the occupants of a submarine boat from the danger of asphyxiation while under water. The most serious objection to the use of submarine boats is the danger of suffocation from the fumes generated by the gasoline engine used to propel the boat on the surface and to furnish power for the dynamo which produces the electricity stored for lighting and for submarine propulsion.

While no serious results have so far followed the presence of the gas in the Holland boats, it is always feared, mainly because it presence cannot be detected by any means at the command of Captain Cable and his men. A Washington scientist has said that the gas is either carbon dioxide or carbon monoxide. It is necessary to know which, in order to provide means of counteracting it. It is figured that mice feel the effect of these gases, which are odorless and tasteless, twenty times more quickly than men.

Captain Cable suggested that mice be introduced into the Fulton. He was told that if a mouse were to inhale either of the gases an examination of the corpuscles of its blood would furnish the desired information. The absence of food of any kind for mice, excepting small quantities of oil kept in patent cans, has made rodents unknown on submarine boats. Accordingly, Captain Cable has secured half a dozen white mice, each in a little cage, and they now form part of the equipment of the Fulton.

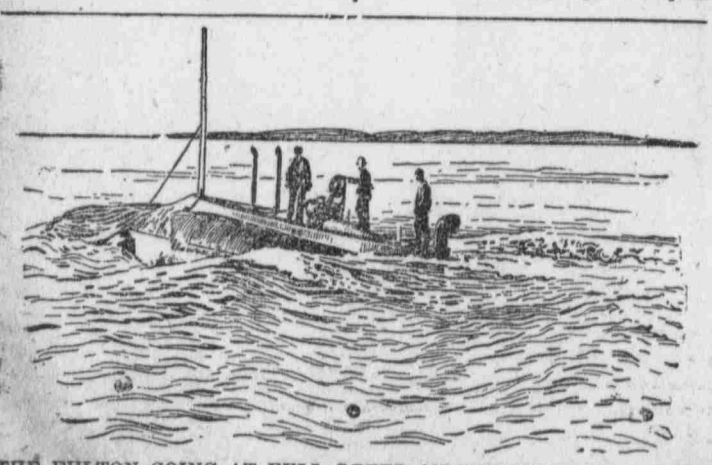


MIDSHIP SECTION OF HOLLAND SUBMARINE BOAT, SHOWING USE OF COMPRESSED AIR.

The air is held in air flasks under pressure of over 2000 pounds to the square inch. The automatic valve allows sufficient air to escape to keep the air pure and breathable. When the air from the flasks is used to pump water from the tanks it is turned on and passes through pipes shown in black lines, and enters water tanks at O O O, filling the tanks with air, forcing the water out at the bottom of tank at outlets. If they use the air compresser it pumps air out of the boat next to the floor, and this foul air is pumped into the tanks at X X X, and forces water out. It can also be pumped out at the outlet B.

MEN WHO SPENT A NIGHT UNDER WATER IN THE SUBMARINE BOAT FULTON.

John Wilson, mate; Frank T. Cable, captain; H. H. Morrell, electrician; Lieutenant MacArthur, standing.
John Saunders, engineer, and Charles Bergh, boatswain, seated.



THE FULTON GOING AT FULL SPEED ON THE SURFACE OF THE WATER.

OF INTEREST TO WOMEN

French Waists.

Smart fancy waists are much in demand to wear with the coats and skirts so necessary to one's comfort. For day wear—that is, for morning wear with cloth costumes—there is quite a variety in taffeta waists, the newest taffetas being changeable ones, trimmed with narrow lines of black velvet. There is a curious green-red changeable taffeta of very soft, pliable weave that is very good, and looks well with black velvet and white lace trimmings. The tucked and pleated waists are the favorite ones; the pleats medium-sized box-pleats, no trimming in the back, and in the front a round yoke or pleats with the lines of velvet. These waists, as a rule, are in dark colors, but some of the lighter taffetas are used, and the rather heavier silks with a cord like those formerly known as gros grains. There is a shade of pinkish blue that is very good in this silk; oddly enough, it is trimmed with a very light blue velvet ribbon. There are many regular shirt waists in flannel, silk, corduroy and velveteen, made in the very plainest fashion, but they are not what can be called very smart, and are only possible with rainy-day gowns, or for market.—Harper's Bazar.

A Clever California Woman.

California boasts of a girl who has been the foreman of a thrashing crew and successfully harvested a season of grain. Her name is Ethel Hobson. Her father is a rancher of San Luis Obispo County. He had a thrashing outfit with all modern improvements, and for fifteen years has harvested grain for the country. His daughter has always been his close companion, and when she was but a little girl played about the harvesting machinery in the field. For the last three years since she was sixteen she has been his bookkeeper. In this capacity she has gone with him from ranch to ranch, camping out in a tent at night. This year at the height of the season Mr. Hobson met with an accident, which laid him up for the summer and rendered it impossible for him to fill his contracts. It was then that his daughter proved her ability to carry on the business, which she has done with marked success. She took her father's place as captain of the big machine in the field. Every detail she superintended herself, from the engine to the separator. Twenty-three men worked under her direction. Some were reputed to be hard characters, but one and all obeyed her orders to the letter.

Gowns of Varied Beauty.

It will be remembered that a certain princess in the fairy tales had a gown which she used to carry round in a walnut shell when on her travels. Just such a frock was shown the other day at one of the smart faiseurs'. It could almost have been passed through a ring. It was gathered all round and opened over a petticoat of tulle confined by the newest of satin bows and boasting the most delightful little pointed waistcoat, fashioned of pink silk and silver embroidery and owning the dearest little sleeves of lace, caught up with a ribbon of soft satin. The whole bore a suggestion of the days of Marie Antoinette, and one longed to see it worn by a fair girl whose golden locks would be worn somewhat high over a cushion wreathed with pink roses and one long curl falling on the left shoulder.

Another evening dress was a poppy-red crepe de chine, a lovely glowing creation, the color of which was thrown up by two full-blown roses in white mousseline diamente. There was an idealized Louis Seize frock in blue, painted with violets, and with raised violets in chiffon, and ruffles of lace and diamond buttons on the most becoming little coat.—New York Commercial Advertiser.

Women Hunters.

Among the hunters who journey yearly to the Adirondacks are many women. When the sportsman now takes a trip to his hunting box his wife accompanies him, and she handles her rifle with an accuracy of aim that commands the admiration of the guides.

That the modern Dianas will continue to participate in this form of sport is beyond question, as the women have in many instances proved themselves to be as fine shots as the men and as able to endure the fatigue of a day's hunting in the wilds.

Women used to enjoy trips in boats at night after deer. This mode of hunting is called jacking, and the favorite method was to paddle quietly along the lake or its inlet in a canoe with just one bright light shining at the bow of the boat.

Deer, especially, possess a vast amount of curiosity, and any startling object that bursts suddenly upon the vision will hold them spellbound for a few moments at least. At night the fascination of the light usually detained the deer long enough to give the hunter a chance to get a shot. Jacking, however, is now prohibited by law in the Adirondacks.

Now the fair hunters are obliged to wait until daylight before starting the hunt. Very often the costume includes a sweater, bloomers and a short, round-necked over-dress of seal brown corduroy, drawn in around the shoulders with elastic, fastened on the left shoulder with one button and belted in with the cartridge belt. High-laced boots and a neat little toboggan cap complete the costume.

As dogs, like the jack lights, are no longer permitted in the Adirondacks the woman hunter must match her skill as a shot against the keen wit of the deer. She starts out to follow the deer runs and to still hunt over the ridges where the acorns and nuts grow, just as the men do.

The hunters now follow an old log road, perhaps, and then plunge at right angles into the thickets to make a short cut for some of the inland bodies of water where the deer drink and disport themselves. The field glass may reveal a deer working his way along the shore of the lake. The deer with his branching antlers moves apparently with little concern, and the woman hunter works along the bank of the lake until a good shot is afforded.

Suddenly the deer is frightened, but before he can turn to escape the crack of the rifle breaks upon the air, and the woman hunter has become the possessor of a deer's head as a proof of her prowess and aim.—New York Sun.

Philadelphia has over 1300 women in civic offices.

Police matrons are now an established feature of the best governed cities.

Several women physicians, such as Mary Putnam Jacobi, of New York, and Sarah Hackett Stevenson, of Chicago, have a national reputation.

New Bedford, Mass., is soon to have a fine library, purchased by the Woman's Club. The women already have collected over $12,000 for this purpose.

A New York woman, Libbie Frieze, has invented a most ingenious rotary massage instrument. It even admits of the application of an electric current.

The Queen of Roumania is interesting herself at present in improving the architectural qualities of the theatres in her husband's domain, and also in raising the standard of dramatic performances.

Miss Margaret Howie is now making the struggle for the future women lawyers of Great Britain. She is refused an examination by the "law agents," and is asking the courts to compel them to accept her.

Rev. Augusta Chapin, D. D., the only woman doctor of divinity, was pastor of a prominent church in Lansing, Mich., as early as 1874. She officiated as chaplain of the Legislature, both in the House and in the Senate.

It is now a common occurrence for women ministers to take part in public functions, to deliver annual addresses before various organizations of men, including memorial addresses before the G. A. R., and to conduct the funeral services of prominent men.

White velvet painted in floral design is the latest fancy in corsets.

Ox blood felt with violet trimmings represents one of the season's combinations.

Flat buttons and long waisted pouch fronts are the characteristics of the new flannel waists.

Fancy buttons, many of them hand painted, appear on some of the handsomest hats this season.

There is a growing tendency to use two materials in sleeves, and the most ultra sleeves are made of puffs from the shoulder to the hand.

The double English violet is being utilized for entire flower toques and turbans, and also for millinery garniture. The dahlia, however, is the flower of the season.

Sable cloth is quite a new fabric, being made up as winter costumes, partaking much of the nature of zibeline, but richer in its effects of light and shade in the folds. This is to be obtained in many colors, but looks lovely in deep violet with a glow of red in it.

It is as a rule only in the more expensive gloves that buttons can be found, and buttons are considered much smarter and have been for some time than the clasps. This is a Paris idea. However, there are many more of the clasp gloves worn than the buttoned, and there is no objection to them so serious that one need quarrel with them.

SCIENTIFIC & INDUSTRIAL

The human system can endure [heat] of 212 degrees, the boiling point [of] water, because the skin is a bad [con]ductor, and because the perspira[tion] cools the body. Men have with[stood] without injury a heat of 300 degr[ees] for several minutes.

A non-corrosive, non-poisonous [alloy] of aluminum has been discover[ed] which may take the place of copper [in] the manufacture of nails, staples [and] tacks. The new material is not [af]fected by the weather, and will not [de]teriorate; it is lighter than copper, [and] four cents a pound cheaper.

Fall River, Mass., produces more than three-quarters of all the print cloths made in the United States, [has] one-seventh of all the spindles in [the] country and about a fourth of those in New England, and more than two as many as any city in the country, [its] mills turn out more than 1500 miles of cotton cloth every working day.

Fossilized tropical fruits have [recent]ly been found in coal mined in Spitzbergen. The discovery opens up a marvellous line of geological speculation. Spitzberger is 400 miles northwest of the northernmost point of Norway and is subject to extreme cold and [has] for half the year in the gloom of the Arctic night. These conditions [add] to the mystery of the existence of tropical vegetation in the region.

Sawdust mortar—a mixture of [saw]dust and lime—has lately been [men]tioned a number of times as a good covering for steam pipes, with the virtue thrown in of affording a means of utilizing waste sawdust. Something like twenty years ago a covering of this general character, made up of sawdust and plaster of paris, was used with satisfaction in one large steam plant, not only for steam pipes, but for the boilers as well; but the development since then of specially manufactured non-conducting coverings in sections at a cost about as low as that of the home-made product, long ago led to the abandonment of the latter.

Professor Albert F. Wood, physiologist of the United States Bureau of Plant Industry, undertakes to explain how foliage is covered by frost. "In autumn leaves containing sugar," says the Professor, "such as the maples, sumachs, gums, etc., easily oxidize, and thus form the rich reds, purples and violets so beautiful to the eye. This is why these, especially the [red] maples, give the most beautiful autumn leaves. Autumnal oak leaves do not attract admiration, because they contain much tannin. The oxidized color of tannic acid is dirty brown. Leaves which die quickly never have autumnal colors. The most gorgeous autumn leaves are produced by a long drawn-out fall, whose days gradually cool from summer heat to winter snow."

Although the sale of arsenic is prohibited in that region white arsenic is eaten freely by the peasants of Styria and the Tyrol. Because of its efficacy in warding off fatigue and enabling those engaged in hard physical work to endure the strain it is an article of daily diet among the people of that region. A district physician states that the arsenic is usually taken before meals in a cup of coffee, and while the first dose is minute the amount taken daily is slowly increased until it reaches an average of fifteen grains. Those working in the arsenic factories of Salzburg are said to become arsenic eaters to avoid being overcome by the fumes of the drug. Immunity from infectious diseases, a fresh, youthful appearance and longevity are some of the advantages the arsenic eaters actually enjoy, but there is always a danger of sudden death. Arsenic eating is indulged in by the women as much as by the men.

Carnegies' Earldoms.

The Carnegies, who have been prominent in Scottish history for five centuries, enjoy two separate Scottish earldoms—those of Northesk and Southesk—which were conferred respectively on the eldest and second sons of Sir David Carnegie, in the seventeenth century. The earldom of Southesk was attained in consequence of the participation of the fifth earl in the rising of 1715, but was restored in favor of the present peer in 1855. Kinnaird Castle, the family seat on the River Eske, was built some [two] years ago, and with its steep roofs, numerous turrets, long stone balconies and balustraded terraces, is a singularly perfect reproduction of the old Scoto-French baronial castle. Some of the trees in the extensive deer park are from 300 to 400 years old.—Los Angeles M. A. P.

An English physician has come to the rescue of near-sighted autoists by making goggles from prescriptions furnished or from the lenses which the motorists wear.